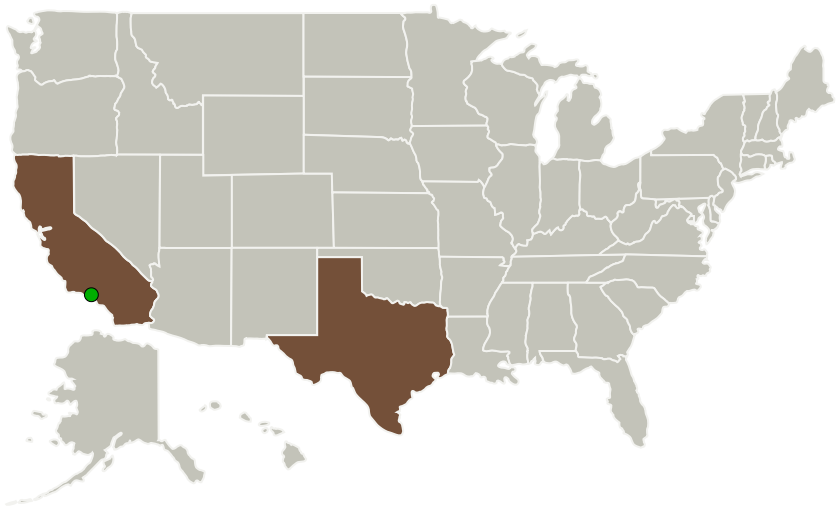
Adaptable Multi-Segment Altitude Control (AM-SAC) Balloon for Planetary Exploration, Phase I

Completed Technology Project (2016 - 2016)

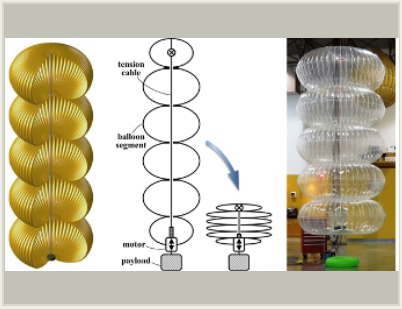
Project Introduction

Thin Red Line USA (TRL-USA) proposes a unique, multi-segment balloon with low-power, rapid mobility altitude control cycling capability that is applicable to both Venus and Titan atmospheric exploration missions as well as other planetary bodies. The innovation creates a single architecture that allows reliable, low power, virtually unlimited altitude cycling capability; overcoming the pitfalls of all other known options for lighter-than-atmosphere exploration at both Venus and Titan. The Phase I effort lays a strong foundation for a Phase II effort that will include the construction and demonstration of an at-scale system using materials suitable for a Venus or Titan mission. The proposed innovation and following Phase II work can, in just 2 years, enable a viable Venus or Titan exploration mission with a low risk LTA system.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Thin Red Line USA, dba of MKF Interests, LLC	Lead Organization	Industry	Houston, Texas
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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Primary U.S. Work Locations	
California	Texas

Project Transitions

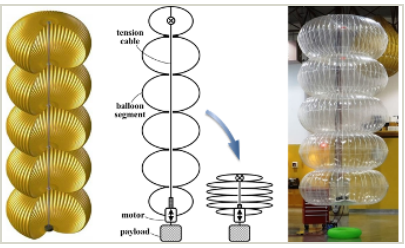
June 2016: Project Start

December 2016: Closed out

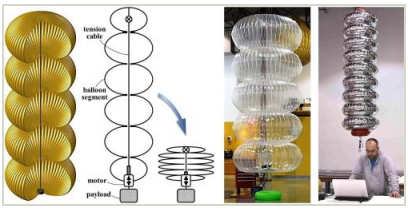
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139656)*

Images



Briefing Chart Image
Adaptable Multi-Segment Altitude Control (AM-SAC) Balloon for Planetary Exploration, Phase I
(https://techport.nasa.gov/image/136049)



Final Summary Chart Image
Adaptable Multi-Segment Altitude Control (AM-SAC) Balloon for Planetary Exploration, Phase I Project Image
(https://techport.nasa.gov/image/127925)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Thin Red Line USA, dba of MKF Interests, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

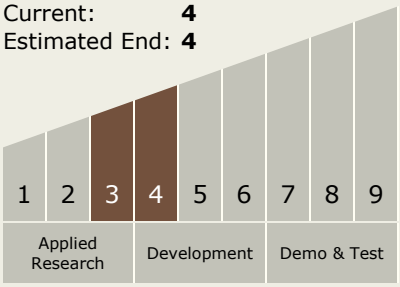
Carlos Torrez

Principal Investigator:

Brian Aiken

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Completed Technology Project (2016 - 2016)

Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.2 Mobility
    - TX04.2.4 Surface Mobility

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System